

COCHLEAR IMPLANTS WITH A STIMULUS IN THE HUMAN ULTRASONIC RANGE AND METHOD FOR STIMULATING A COCHLEA

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ABSTRACT

A cochlear implant system for a patient's cochlea includes an external processor and an implanted internal unit. The internal unit includes one electrode for inserting in the patient's cochlea, and an internal coil for driving the electrode. The external processor

10 includes a microphone for outputting electrical sound signals in response to ambient or other sounds, an oscillator for generating an electrical analog carrier signal, and a modulator for modulating the carrier signal with the sound signals to generate a modulated signal. An external coil couples magnetically the modulated signal to the internal coil. The analog carrier signal has a frequency in the ultrasonic human range, i.e. greater than 20 kHz, such as
15 32 kHz or 80 kHz. This sampling at higher frequency results in clearer rendering of sounds, and a higher frequency range of rendered sounds.